

strata were evidently formed under the influence of "a warm, equable and moist climate," and I know of no glacial phenomena in connection with this epoch.

But respecting Permian times I attempted in 1855 to prove the existence of ice-borne boulder beds during part of that epoch, and by degrees this opinion has been more or less adopted. These boulder beds were derived by glacial transport from the mountains of Wales, which then, also, were necessarily much higher than now. As the Old Red boulder beds were formed during a glacial episode or episodes of parts of that epoch, so the Permian boulders mark another glacial episode occupying part of Permian time, just as our last great glacial epoch formed an episode in those late Tertiary times of which the present time forms a part. At the time of the publication of this paper, I conceived the Permian boulders to have been deposited in the sea by the agency of icebergs, but I now consider them to have been deposited in inland lakes.

This, if true, formed a second glacial epoch, of unknown intensity, during the long continental period that lay between the close of Upper Silurian and the beginning of Liassic times.

During the Triassic period there is no certain sign of glacial phenomena in the British area.

I have elsewhere attempted to show that at the present day there is an intimate connection between past glacial phenomena and the occurrence of lakes, large and small, many of which are true rock-bound basins.

I further believe that this cause would be found to characterise ancient Continental recurrent glacial epochs through all past time, if perfect data were accessible, or had been preserved from destruction by denudation and disturbance of strata. In the Palæozoic cases mentioned above, there is, in my opinion, an evident connection of some kind between inland lakes and glacial action, and in stating this it must be borne in mind that I do not consider the Old Red and Permian strata of Britain to have been deposited solely in two lake basins during two epochs, but in various basins during each of two special eras of geological time. For example, the Magnesian Limestone beds of Yorkshire and Northumberland were formed in a hollow quite distinct from the great conglomerates (locally called "brockram") and sandstones of the Vale of Eden. Prof. Harkness in 1856* showed that in the South of Scotland Permian beds, partly formed of brecciated conglomerates, lie in rocky hollows entirely surrounded by lips of Silurian and Carboniferous strata, in fact, in rock basins; and he attributed this singular circumstance to a sinking in of the Silurian strata in each case underneath the Permian rocks.

Ever since the publication of my paper, in 1862, on the Glacial origin of certain lakes in rock basins, I have suspected that these Permian rock basins may also have been scooped out by the agency of glacier ice. I connect this view with my paper on Permian glaciers, published in the *Geological Journal* in 1855, but as I have not yet seen the country where these hollows lie, I have not been able either to verify or disprove this supposition. I expect, however, that some day this view will be proved, not for these areas alone, but for others of larger area and very different date, which as yet I have only partially examined, in other European countries.

The unravelling of nearly all stratigraphical phenomena of every geological age resolves itself simply into attempts to realise ancient physical geographies, and we may rest assured that those forces that are now in action have played their part in the world sometimes with greater, sometimes with less intensity, through all known geological time, as far as it can be studied by an examination of the rocks that form the crust of the earth. If glacier ice scooped out many lake rock-basins in the latest great glacial epoch, it did the same during glacial epochs of earlier date.

A. C. RAMSAY

* *Geol. Jour.*, vol. xii. p. 254.

WOOD'S "INSECTS AT HOME"*

THIS bulky volume of 670 pages appears to us to be altogether a mistake. It is far too voluminous and too uninteresting for a beginner, while for the more advanced student it is almost valueless, being a very incomplete compilation from the works of well-known writers. It consists of brief and imperfect descriptions of a selection of, perhaps, one-twentieth of the insects inhabiting Great Britain, with occasional notices of their habits and economy, and extracts from a few entomological works. These descriptions are generally introduced by such words as "Our next example," "We next come to," "We now come to," "Next in order comes," "Next on our list is," &c. &c.; and for the most part are mere amplifications of short technical characters, conveying a minimum of useful information, with a maximum expenditure of words. Let us take two examples at random. At p. 76 we have two-thirds of a page devoted to a beetle:—

"Our first example of the Staphylinidæ is one of the finest, in my opinion the very finest, of that family. It is called scientifically *Creophilus maxillosus*, but has, unfortunately, no popular name, probably because it is confounded in the popular mind with the common black species, which will be presently described. Its name is more appropriate and expressive than is generally the case with insect names. The word *Creophilus* is of Greek origin, and signifies 'flesh-lover,' while the specific title, *maxillosus*, signifies 'large-jawed.' Both names show that those who affixed them to the insect were thoroughly acquainted with its character and form, for the Beetle is a most voracious carrion eater, and has jaws of enormous size in proportion to its body. The colour of this beetle is shining black, but it is mottled with short grey down.

"In some places this Beetle is tolerably plentiful, but in others it is seldom if ever seen. It can generally be captured in the bodies of moles that have been suspended by the professional mole-catchers, and, indeed, these unfortunate moles are absolute treasure-houses for the coleopterist, as we shall see when we come to the next group of Beetles. A figure of this insect is given on woodcut No. viii. Fig. 3. It is the only British insect of its genus which is distinguished by having short and thickened antennæ, smooth head and thorax, and the latter rounded."

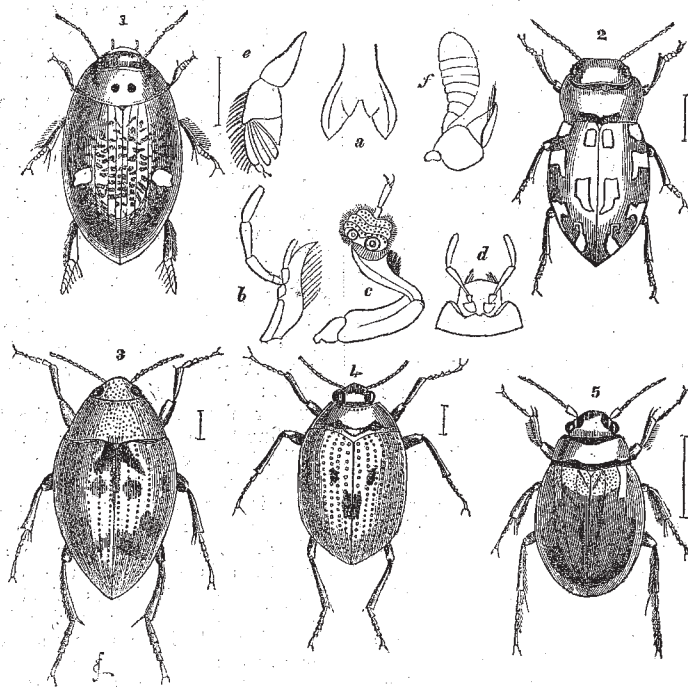
The descriptive portion of this characteristic passage could be easily compressed into two or three lines. In the other twenty we are told that the original describers of the insect were well acquainted with it, that the public are not, and that moles caught by professional mole-catchers are unfortunate!

Turning to page 447, we have a moth described as follows:—

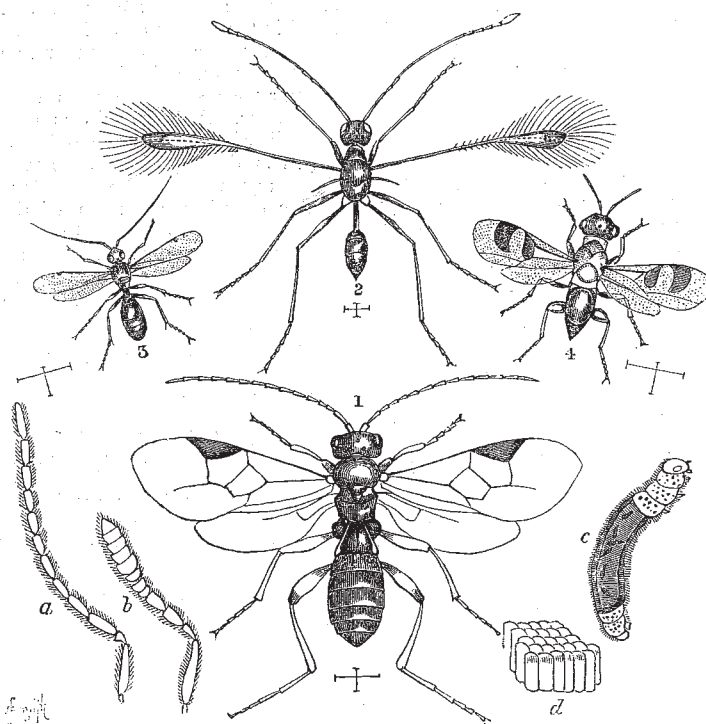
"The first family of the Geometræ is called Urapterydæ, or Wing-tailed Moths, because in them the hinder wings are drawn out into long projections, popularly called 'tails.' In England we have but one insect belonging to this family, the beautiful, though pale-coloured, swallow-tailed moth (*Urapteryx sambucata*). The generic name is spelt in various ways, some writers wishing exactly to represent the Greek letters of which it is composed, and others following the conventional form which is generally in use. If the precisians are to be followed, the word ought to be spelt Ourapteryx.

"There is no difficulty in recognising the moth, the colour and shape being so decided. Both pairs of wings are delicate yellow, and the upper pair are crossed by two narrow brown stripes, which run from the upper to the lower margin. These stripes are very clear and well defined, but besides these are a vast number of very tiny

* "Insects at Home: Being a Popular Account of British Insects, their Structures, Habits, and Transformations." By the Rev. J. G. Wood, M.A., F.L.S., &c. With upwards of 700 Figures by E. A. Smith and J. B. Zwecker. Engraved by G. Pearson. (Longmans, Green, and Co. 1872.)



1. *Agabus biguttatus*. 2. *Hydrophilus duodecim-pustulatus*. 3. *Haliphus variegatus*. 4. *Chemidotus cæsus*. 5. *Pelobius Hermannii*.
 a. *Dyticus*, process of metasternum. b. *Dyticus*, maxillary palpus. c. *Dyticus*, anterior leg of male. d. *Dyticus*, labial palpi. e. *Gyrinus*, posterior leg.
 f. *Gyrinus*, antenna.



1. *Microgaster glomeratus*. 2. *Myrmecopoda pulchellus*. 3. *Teleas elatior*. 4. *Cleonymus maculipennis*. a. *Teleas*, antenna, female. b. Do., antenna, male. c. *Microgaster*, larva in caterpillar of cabbage-butterfly. d. *Microgaster alvearius*, cocoons.



DRAGON-FLIES, MAY-FLIES, AND CADDIS

1. *Ephemerella virgo*. 2. *Ephemerella*, larva. 3. *Libellula depressa*. 3a. *Libellula* emerging from pupa-case. 4. *Libellula*, larva. 5. *Calopteryx virgo*. 6. *Agrion minium*. 7. *Phryganea grandis*. 8. *Phryganea*, larva cases, or Caddis. PLANTS:—Flowering Rush (*Butomus umbellatus*). In Centre. Mare's-tail (*Hippuris vulgaris*). On Right. Water Bistort (*Polygonum amphibium*). On Left.

streaks of a similar colour, which look as if they had been drawn in water-colours with the very finest of brushes, and then damped so as to blur their edges. The hind wings have only one streak, which runs obliquely towards the anal angles, and, when the wings are spread, looks as if it were a continuation of the first stripe on the upper

wings. The shape of the moth almost exactly resembles that of the Brimstone Butterfly, described on page 393.

"The larva affords an admirable example of the twig-resembling caterpillars. It is exceedingly variable in colour, but is always some shade of brown. It has seven bud-like humps, and a few pale stripes along the sides. I

is a very general feeder, and may be found on a considerable number of trees and plants. It is quite common, and but for its curious form, would certainly be found much more frequently than is the case. The perfect insect appears about July, and can be beaten out of bushes and hedges. Though the wings are large, they are thin and not very powerful, so that there is no difficulty in capturing the insect."

Of course much of the book consists of more interesting matter than this, but hundreds of pages are filled with such verbose and meagre passages as those quoted, which are far more repulsive to the learner than the most condensed and technical description. Those given in Stainton's Manual, for instance, contain more than double the actual information in about one fourth of the space.

The book is illustrated by copious woodcuts in the letterpress and by several whole-page pictures. The former are most admirable, and do great credit to the artist, Mr. E. A. Smith. We select a group of Water Beetles (Cut vi.), and one of the minute and curious parasitic Hymenoptera (Cut xxxii.) as examples of these excellent figures, which would do credit to a far more scientific work. The whole-page illustrations are by another hand, and are in every respect inferior. Some of them contain fair representations of insects in their haunts, but the vegetation is generally badly drawn, and the plants said to be figured are often quite unrecognisable. The best and most artistic picture is Plate VIII., representing a group of Neuroptera with aquatic vegetation. The worst is Plate XIX., representing aquatic Heteroptera. The insects are pretty well drawn, but the plants are dreadful. One of them is said to be the Starwort (*Aster tripolium*). What is meant for this stands prominently out in the view; but the artist has evidently never seen the plant, and, trusting to his imagination to invent something suited to the name, has perched three thick six-rayed starfish on bending stalks. We venture to assert that no plant having the faintest resemblance to this monstrosity forms part of the British flora, and its introduction into a modern work on natural history is most discreditable. It is painful to have to speak in these terms of the work of an author who has done so much to popularise natural history as Mr. Wood, but we must protest against mere book-making; and in this case there could be no pretence of a want to be supplied, since the excellent series of "Introductions" published by Messrs. Reeve and the more general works of Prof. Duncan, Dr. Packard, and others, are far better guides to the student or to the general reader than such a hasty and imperfect compilation as the present volume.

A. R. W.

NOTES

THE Council of the Royal Society have awarded the medals in their gift for the present year as follows:—The Copley Medal, to Julius Robert Mayer, of Heilbronn; the Royal Medals to Mr. George Busk, F.R.S., and Dr. John Stenhouse, F.R.S.

PROF. ARCHIBALD GEIKIE is desirous of addressing himself through our columns to those of our readers who were friends and correspondents of Sir Roderick Murchison. They would much oblige and assist him if they would let him have the use of such of his letters as they can allow to be employed in the preparation of the biography which, at Sir Roderick's request, he has undertaken to write. If the documents are sent to him at Ramsay Lodge, Edinburgh, they will be returned at the earliest possible date.

FROM the English Government Eclipse Expedition we learn that since leaving Malta, on the evening of Saturday the 4th, the weather has been all that could be wished, and that Mr. Lockyer and the other members of the expedition have not failed to take all possible advantage of the calm weather in

testing their instruments and preparing themselves in every possible way for rapid yet correct observations during the few minutes over which the phenomena of the morning of the 12th December will extend. The *Mirzapore* commenced steering through the canal at 2.30 on the 8th, and anchored in Suez Roadstead at twelve on the 10th, all well. It was hoped that she might sail by daylight on the morning of Sunday, the 12th. In that case she might get to Galle by the 25th, and the Expedition would then have seventeen days at their disposal for arranging themselves and their instruments over the line of totality, from the north of Ceylon to the western shore of Southern India. The passage through the Canal has been a pleasant and interesting one.

THE Falconer Memorial Fellowship, at the University of Edinburgh, which is of the annual value of about 100*l.*, tenable for two years, has been conferred on Mr. William Stirling, B.Sc. The Baxter Physical Science Scholarship, vacant by the appointment of Mr. William Stirling, to the Falconer Memorial Fellowship, has been conferred for one year on Mr. Alexander Hodgkinson.

MR. P. L. SIMMONDS is now delivering at the London Institution, Finsbury Circus, the Travers Course for 1871-2, on Science and Commerce, illustrated by the raw materials of our manufactures, in two lectures, the first of which will be this evening, and the second on November 30th.

PROF. PARTRIDGE commenced his annual course of lectures on Anatomy to the pupils and Royal Academicians in the new theatre at Burlington House on Monday last week, and will continue the same every Monday evening up to December 11 inclusive, at eight o'clock.

AMONG the disastrous results of the recent fire at Chicago, one not referred to in the public papers was, we regret to learn from *Harper's Weekly*, the entire destruction of the building and collections of the Academy of Sciences of that city. This institution, first started by the energy of the late Mr. Robert Kennicott, and carried to its late condition of prosperity under the charge of Dr. William Stimpson, had already taken a front rank among the learned establishments of the country. Its publications embraced material of the utmost value, while its museum ranked at least as high as the fifth in the United States. Although believed to be fire-proof, the building, like others of the same character in Chicago, presented but little resistance to the flames, and everything within the walls was destroyed. The loss included, besides the collections in natural history of the Academy, a large number of marine invertebrates belonging to the Smithsonian Institution, which had been forwarded to Dr. Stimpson for investigation. The private cabinet of this gentleman, and a large mass of valuable manuscript belonging to him, embracing extended memoirs upon the mollusca, radiata, and crustacea of North America, with numerous illustrations, were entirely destroyed.

AFTER a seven years' tour of exploration in South America, Dr. A. Habel, a former resident of Hastings-on-the-Hudson, has returned to New York, where he is assiduously engaged in preparing the results of his labours for the press. Among the regions traversed by this gentleman may be mentioned the greater part of Central America, the Cordilleras of the Andes in Colombia, Ecuador, and Peru, and finally the Chincha Islands and the Galapagos. During this whole period Dr. Habel was diligently occupied in gathering information in regard to the natural and physical history of the countries mentioned, especially in the departments of ethnology, meteorology, and zoology. He has already made some communications on the subject of his travels to the Academy of Sciences at Paris, and other learned bodies, and we look forward to his detailed report with anticipations of